



Creating Resilience Capability against Critical Infrastructure Disruptions: Foundations, Practices and Challenges

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WELCOME TO INTERNATIONAL CONFERENCE!

**Creating Resilience Capability against Critical
Infrastructure Disruptions: Foundations, Practices
and Challenges**

IDA Conference Center, Copenhagen, Denmark

13 April, 2015



Organizers

DTU/Technical University of Denmark

in collaboration with

- the Danish Risk Society, IDA Risk,
- EU project 'Resilience Capacities Assessment for Critical Infrastructure Disruptions' (READ)
- Copenhagen University's Disaster Programme, and
- Danish Emergency Management Agency



Programme

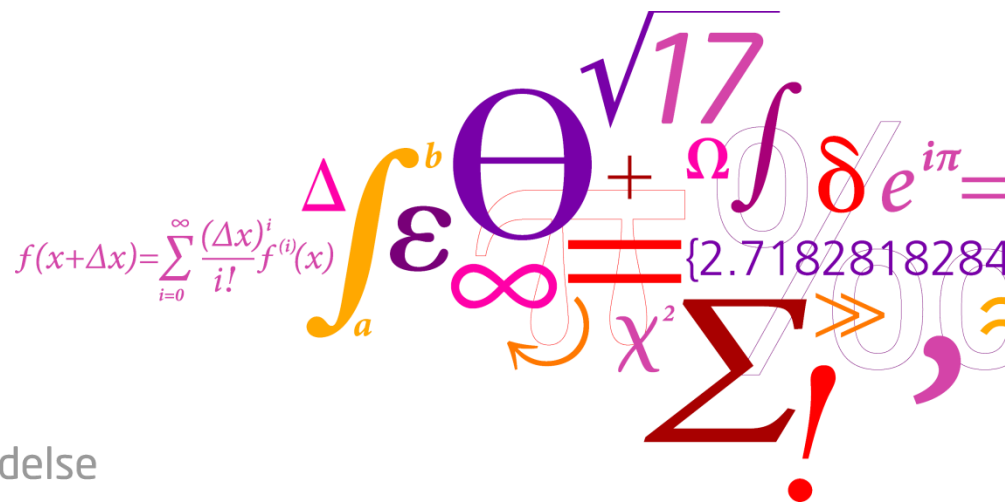
| | |
|---------------|---|
| 09:00 – 10:00 | Registration and breakfast |
| 10:00 – 10:30 | <i>Henning Boje Andersen; Igor Kozine (DTU Management Engineering):</i> Welcome and introduction to conference theme. Outline of EU READ project |
| 10:30 – 11:00 | Mads Ecklon (Head of Division of the Centre for Preparedness Planning and Crisis Management, Danish Emergency Management Agency - DEMA): <i>Resilience in a crisis management context</i> |
| 11:00 – 11:30 | Hans Kleintjens (Senior Programme Coordinator at the regional fire service in Twente Region, Netherlands): <i>Resilience Capacities: How to Cope with Major Disruptions in Electrical Power Supply</i> |
| 11:30 – 12:00 | Paul Scobbie (Critical Infrastructure Resilience Unit of the Scottish Government - CIRU): <i>Critical Infrastructure Resilience – the Scottish Experience</i> |
| 12:00 – 13:00 | Lunch/Bufferet |

Programme

| | |
|---------------|--|
| 13:00 – 13:40 | Arjen Boin (Professor of Public Institutions and Governance Department of Political Science, Leiden University, Netherlands): <i>Trans-boundary Crises and the Coordination Challenge: A Search for New Institutions</i> |
| 13:40 – 14:20 | Kurt Petersen (Professor in Safety Analysis and Risk Management; Director of LUCRAM, Lund University Centre for Risk Assessment and Management, Sweden): <i>New Challenges in Resilience Assessment</i> |
| 14:20 – 14:40 | Coffee, cake and refreshments |
| 14:40 – 15:20 | Linda Janet Bellamy (Director, White Queen Safety Strategies, Hoofddorp, Netherlands): <i>The Human Contribution to Resilience</i> |
| 15:20 – 15:50 | Kathleen Tierney (Director of the Natural Hazards Center, professor in Dept. Sociology and the Institute of Behavioral Science, University of Colorado, Boulder, USA): <i>Community Impacts of Critical Infrastructure Disruption: The Argument for Enhanced Resilience</i> |
| 15:50 – 16:30 | Panel discussion. Summing up |

OUTLINE OF THE READ PROJECT

READ: Resilience Capacities Assessment for Critical Infrastructure Disruptions



The READ project

- **EU Programme:** The Prevention, Preparedness and Consequence Management of Terrorism and other Security-related Risks (CIPS). European Commission – Directorate-General Home Affairs
- **Start and completion date:** October 2014 to September 2016

- **Coordinator:**



- **Collaborating partners:**



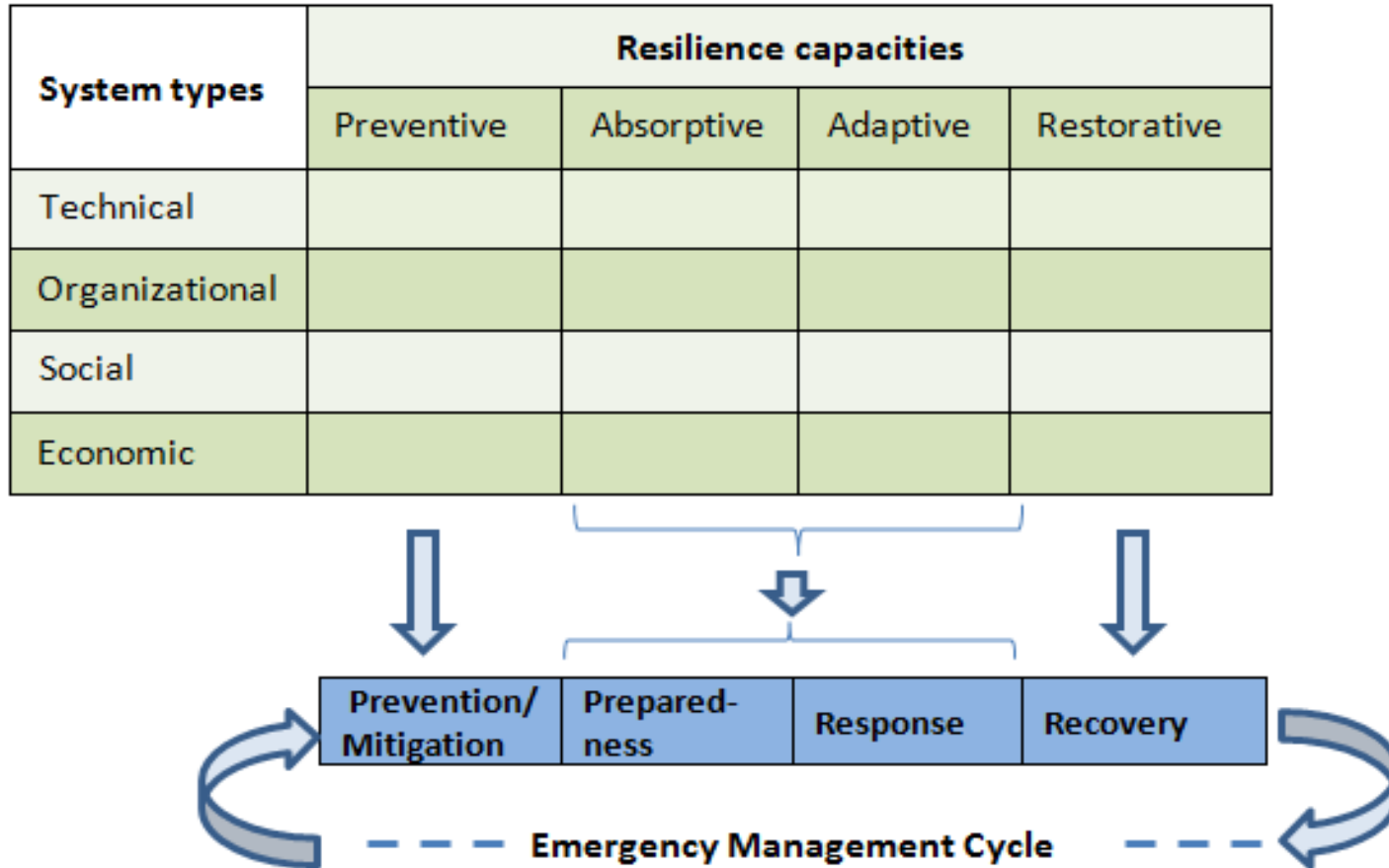
READ: Objectives

- **Develop a framework** to identify, build and assess specific resilience capabilities required to prepare, cope and recover from cross-border CI disruptions;
- **Develop** a set of tools (**the READ Preparedness & Response tool** and **the READ Recovery Tool**) aiming at supporting the stakeholders involved in emergency management activities, including the CI operators, to assess their own resilience capacities with respect to cross border CI disruptions and thus identify the main areas where progress is needed;
- **Test the READ Preparedness & Response Tool** during the preparation activities of a real live civil protection exercise regarding a potential disastrous scenario involving the Øresund bridge-tunnel between Denmark and Sweden;
- **Test the READ Recovery Tool** during a table-top exercise involving some selected EU stakeholders (emergency managers, civil protection authorities, first responders and CI operators).

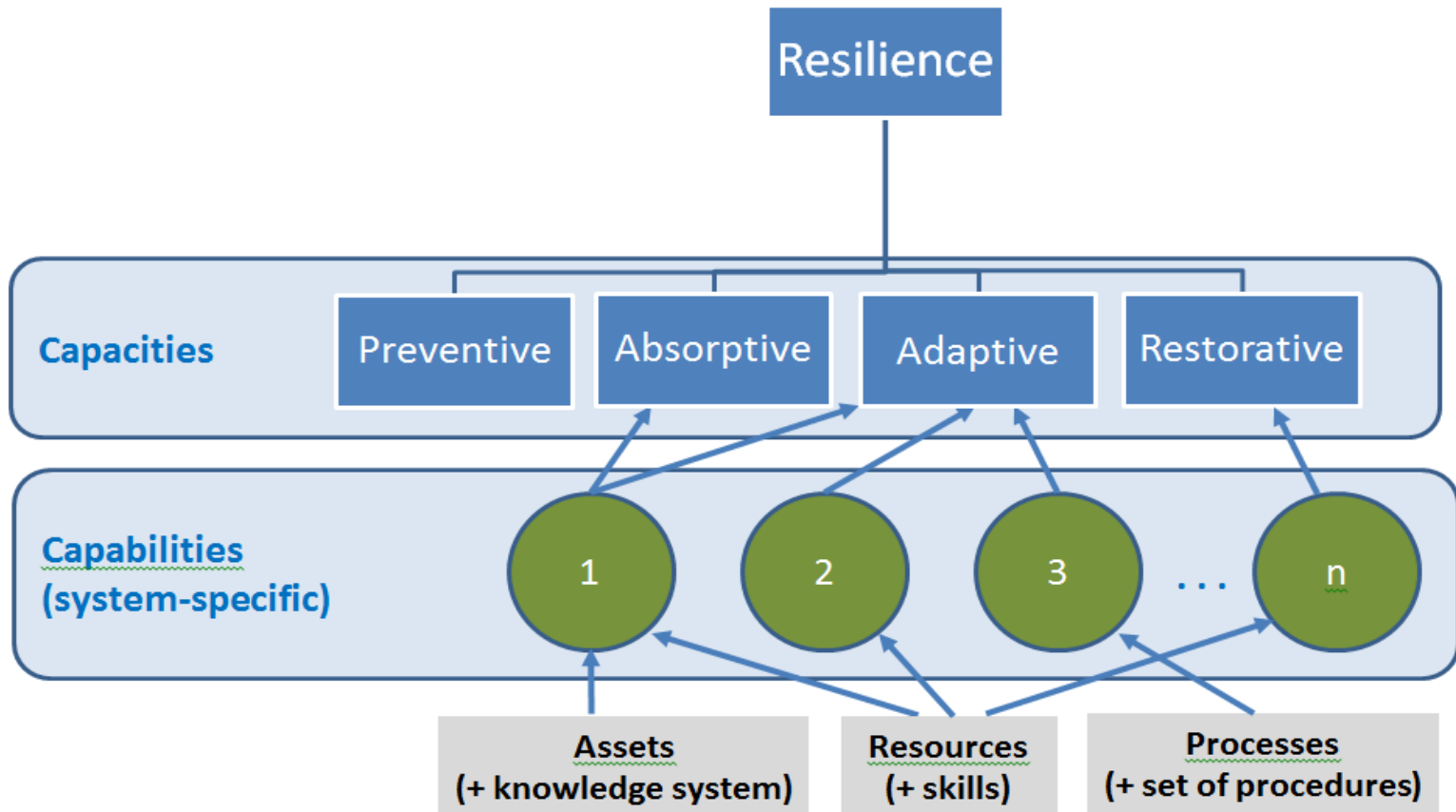


***OUTLINE OF THE FRAMEWORK FOR
BUILDING RESILIENCE AGAINST CI
DISRUPTIONS***

Resilience capabilities' space coupled to the EM cycle



Building system resilience



Example

Capability: Provision of access to required information

- **Asset:** Information (can be paper medium, e-repository, audio records, etc.)
- **Resource:** Examples may be tools such as communication links, computer terminals, competencies to operate and make use of these.
- **Processes/routines** (procedures, prescriptions or tacit background knowledge and know-how): Examples may be instructions for getting access to the target information which may include authorization, credentials for e-access, etc.

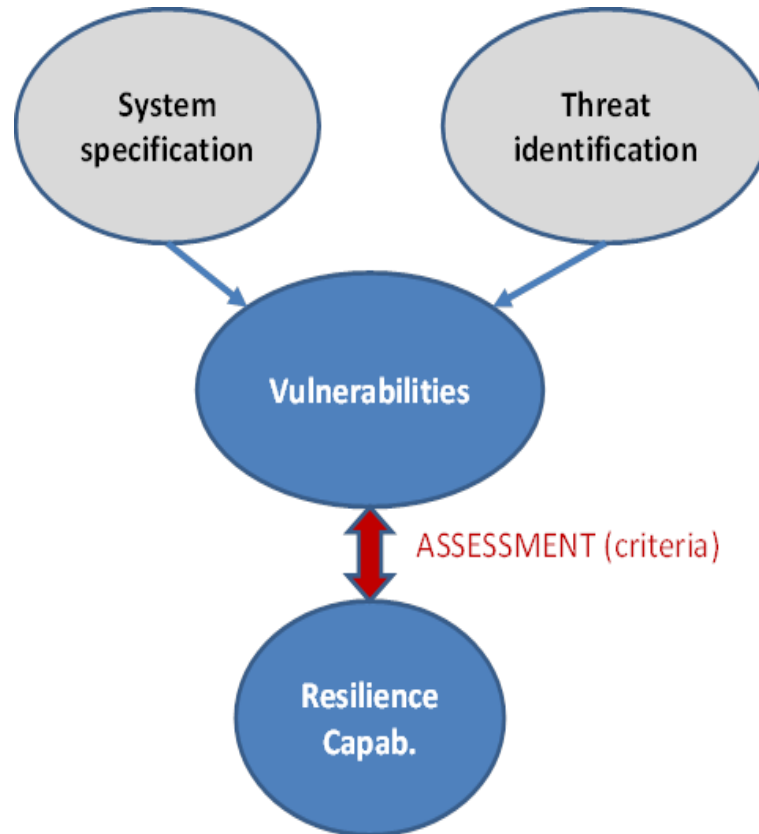
Resilience capabilities' space extended by the intra-/inter-organisational dimension

| System types | Intra-/inter-organisational dimension | Resilience capacities | | | |
|----------------|---------------------------------------|-----------------------|------------|----------|-------------|
| | | Preventive | Absorptive | Adaptive | Restorative |
| Technical | Intra | | | | |
| | Inter | | | | |
| Organizational | Intra | | | | |
| | Inter | | | | |
| Social | Intra | | | | |
| | Inter | | | | |
| Economic | Intra | | | | |
| | Inter | | | | |

Inter-organisational model

| | INTER-ORGANISATIONAL MODEL (National and cross-border) | | | | |
|-------------------------------------|--|------------|-----------|-------------|-------------------|
| Capabilities | Independent | Coordinate | Cooperate | Collaborate | Meta-organisation |
| + To share Authority | | | | | |
| + To share Power | | | | | |
| + To share Activities and Resources | | | | | |
| + To share Information | | | | | |
| Intra-Organisational Resilience | | | | | |

Coupling resilience capability solutions to specific CIs



Ranking resilience solutions for implementation/enhancement

| Vulnerabilities | Preventive | Absorptive | Adaptive | Restorative |
|-----------------|------------|------------|----------|-------------|
| | ✓ | | ✓ | ✓ |
| | | ✓ | | |
| | | ✓ | ✓ | |
| | | | ✓ | |
| | ✓ | | | ✓ |
| | | | ✓ | ✓ |
| | ✓ | ✓ | | |

Prioritized list



THANK YOU

